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UNITED STATES
DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

Washington, D. C.

Issued June 1935

HANDBOOK OF OFFICIAL
UNITED STATES STANDARDS
FOR
INDIVIDUAL EGGS

Effective February 16, 1934



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FOREWORD

A primary requisite in the standardization and grading of eggs is a set of standards for individual eggs in accordance with which it is possible to classify every edible egg.

These official United States standards for individual eggs, which were promulgated by the Secretary of Agriculture to be effective on and after February 16, 1934, are believed to constitute a suitable basis for a national program of egg standardization.

Attention is directed to the fact that these standards are intended for application only to individual eggs, and that they do not include such factors as color, size, weight, packing, treatment, or tolerance, all of which are questions of classes or grades for eggs and which are covered in the present tentative United States grades for eggs, or which will be covered in United States classes and grades for eggs to be later promulgated.

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III

2 STANDARDS FOR INDIVIDUAL EGGS

The yolk must be well centered, its outline indistinct, and it must be free from visible germ development and other defects or blemishes.

The white must be firm and clear.

SPECIFICATIONS FOR U. S. EXTRA

The shell must be clean, sound, and normal.

The air cell must not exceed two-eighths inch in depth and must be regular except in the retail grade of U. S. Extra, when the air cell may be slightly tremulous.

The yolk must be fairly well centered and its outline may be moderately defined. It may be slightly mobile but must be free from visible germ development and practically free from other defects or blemishes.

The white must be firm and clear.

SPECIFICATIONS FOR U. S. STANDARD

The shell must be clean and sound but may be slightly abnormal.

The air cell must not exceed three-eighths inch in depth and may show movement not in excess of one-half inch.

The yolk outline may be well defined. The yolk may be mobile and may show slightly visible germ development and other definite but not serious defects.

The white must be reasonably firm and be clear.

SPECIFICATIONS FOR U. S. TRADE

The shell must be clean and sound but may be abnormal.

The air cell may be over three-eighths inch in depth, may show movement in excess of one-half inch, and may be bubbly or free.

The yolk may be plainly visible. It may be freely mobile and cast a dark shadow. It may show clearly visible germ development but no blood. It may show other serious defects.

The white may be weak and watery.

STANDARDS FOR EGGS WITH DIRTY SOUND SHELLS

Standards are provided for three qualities of dirty, sound-shell eggs, namely, U. S. Extra Dirty, U. S. Standard Dirty, and U. S. Trade Dirty. The specifications for dirty-shell eggs of each of these three qualities are the same as for the corresponding quality of clean-shell eggs except that the shell may be only

slightly stained or slightly dirty in the U. S. Extra Dirty and it may be stained or dirty in the U. S. Standard Dirty and the U. S. Trade Dirty.

STANDARDS FOR EGGS WITH CHECKED OR CRACKED SHELLS

One standard is provided for eggs with checked or cracked shells, namely, U. S. Check. The specifications for eggs of this quality shall be the same as for clean sound-shell eggs of the quality of U. S. Trade or better, except that the shell may be checked or cracked but not leaking, and it may be clean, stained, or dirty.

In testimony whereof I have hereto set my hand and caused the official seal of the Department of Agriculture to be affixed in the city of Washington, this 15th day of February 1934.



H. Wallace
Secretary of Agriculture.

EXPLANATION OF TERMS

TERMS DESCRIPTIVE OF SHELL

(1) *Clean*.—A clean shell is one which is free from foreign matter and from stains or discolorations. Eggs which show traces of processing oil on the shell are considered clean when classified as processed or shell-treated eggs, unless the shell is otherwise soiled.

(2) *Sound*.—A sound shell is one that is free from checks, cracks, or blind checks.

(3) *Normal*.—A normal shell is one which approximates the usual shape and which is of good, even texture and strength and free from distinct ridges, rough areas, thin spots, or other conditions not common to good shells.

(4) *Slightly abnormal*.—A slightly abnormal shell is one which may be somewhat unusual in shape or which may be somewhat faulty in texture or strength. It may also show distinct but not pronounced ridges, thin spots or rough areas.

(5) *Abnormal*.—An abnormal shell is one which may be decidedly misshapen or which may be decidedly faulty in texture or strength or which may show pronounced ridges, rough spots, or other defects.

TERMS DESCRIPTIVE OF AIR CELL

(6) *Depth of air cell*.—The depth of the air cell when in its natural position is the distance from the end of the egg to the plane passing through the egg at the lower edge of the air cell where the cell touches the shell.

(7) *Regular*.—A regular air cell is one which shows a practically even, smooth outline (without any movement) when the egg is twirled.

(8) *Slightly tremulous*.—A slightly tremulous air cell is one which retains a practically fixed position in the egg but shows a slight movement, not to exceed one-eighth inch, at any one point where its lower edge touches the shell.

(9) *Movement not in excess of one-half inch*.—An air cell which shows a movement, at one or more points where its lower edge touches the shell, but not in excess of one-half inch.

(10) *Movement in excess of one-half inch*.—An air cell which shows a movement, at one or more points where its lower edge touches the shell, which may be in excess of one-half inch.

(11) *Bubbly*.—A bubbly air cell is one which has several rather small bubbles within or beneath it which give it a bubbly appearance.

(12) *Free*.—A free air cell is one which moves freely about in the egg. Such an air cell will seek the uppermost point in the egg, no matter in what position the egg may be turned.

TERMS DESCRIPTIVE OF YOLK

(13) *Well centered*.—A yolk that occupies the center of the egg without much movement from that position when the egg is twirled.

(14) *Fairly well centered*.—A yolk that occupies the center of the egg but which may show a moderate movement from that position when the egg is twirled.

(15) *Plainly visible*.—A plainly visible yolk or yolk shadow is one which has a plainly discernible outline before the candle and may appear as a dark shadow.

(16) *Dark shadow*.—A dark yolk shadow results when a freely mobile yolk closely approaches the shell, when twirled before the candle, and is distinctly discernible as a dark shadow.

(17) *Outline indistinct*.—A yolk or yolk shadow, the outline of which is not clearly discernible when viewed before the candle.

(18) *Outline moderately defined*.—A yolk or yolk shadow, the outline of which may be seen but which is not well defined before the candle.

(19) *Outline well defined*.—A yolk or yolk shadow, the outline of which is plainly discernible before the candle.

(20) *Motion sluggish*.—A yolk which moves slowly and which does not move far from its normal position in the center when the egg is twirled.

(21) *Slightly mobile*.—A yolk which moves somewhat but not freely from the center of the egg when the egg is twirled.

(22) *Mobile*.—A mobile yolk is one which shows considerable movement away from the center of the egg when the egg is twirled before the candle.

(23) *Freely mobile*.—A freely mobile yolk is one which shows a wide movement or swing away from the center of the egg when the egg is twirled before the candle and which comes sufficiently close to the shell to cast a decidedly dark shadow.

(24) *Practically free from other defects or blemishes*.—A yolk which may show a slightly mottled condition but is otherwise unblemished.

(25) *Other definite but not serious defects*.—A yolk which is mottled, is slightly spread, or which shows moderate heat spots.

(26) *Other serious defects*.—A yolk which is decidedly spread or weak or which shows well developed heat spots or other spots, or areas of a character which do not render the egg inedible.

(27) *Free from visible germ development*.—No visible development of the germ indicates that there has been no development of the germ spot or if slight development has occurred that it has not proceeded to the point at which it can be distinguished by candling.

(28) *Slightly visible germ development*.—Slightly visible development of the germ indicates that there has been some development of the germ and that it has proceeded to the point at which it is visible before the candle as a deeper colored area on the yolk.

(29) *Clearly visible germ development*.—Clearly visible development of the germ without blood showing, is a condition that indicates that the development of the germ has progressed to a point at which it is plainly visible before the candle as a deeper colored area or as a bubble or spot on the yolk.

(30) *Blood*.—As used in connection with condition of the germ, refers to blood which shows before the candle and which has formed as the result of embryo development. It does not refer to blood spots which occur in fresh eggs not due to embryo development.

TERMS DESCRIPTIVE OF THE WHITE

(31) *Firm*.—A firm white is one which is sufficiently thick or viscous to permit but little movement of the yolk from the center of the egg. A firm white is one of the principal causes of an indistinct or a moderately defined yolk outline.

(32) *Reasonably firm*.—A reasonably firm white is one which has a weakened viscous condition and thereby allows the yolk to move more freely from its normal position in the center of the egg and to approach the shell more closely when the egg is twirled. When the white is reasonably firm, the outline of the yolk may be well defined, but the yolk does not approach the shell closely enough to cast a dark shadow.

(33) *Weak and watery*.—A weak and watery white is one which is thin and generally lacking in viscosity and therefore permits the yolk to move freely from its normal position in the center of the egg and closely approach the shell when the egg is twirled. A weak and watery white is indicated by the free movement and the decidedly dark shadow of the yolk as the egg is twirled before the candle. Eggs with weak and watery whites often develop a tremulous, bubbly, or free air cell.

(34) *Clear*.—A clear white is one which is free from discoloration or from any foreign bodies which, before the candle, appear as dark bodies. Prominent chalazae should not be confused with foreign bodies.

INEDIBLE EGGS

Under the Federal Food and Drugs Act, eggs which are filthy, putrid, or decomposed in whole or in part are adulterated. The following are regarded as inedible eggs: Black rots, white rots, mixed rots (addled eggs), sour eggs, eggs with green whites, eggs with stuck yolks, moldy eggs, eggs showing blood rings, eggs containing embryo chicks, and any other eggs which are filthy, decomposed, or putrid.

Inedible or adulterated eggs shall not be considered as conforming to the requirements of any of the Official United States Standards for Individual Eggs.

Eggs containing small meat spots or blood clots of such a character that they can be readily removed shall be considered edible eggs but not of a quality higher than U. S. Trade, U. S. Trade Dirty, or U. S. Check.

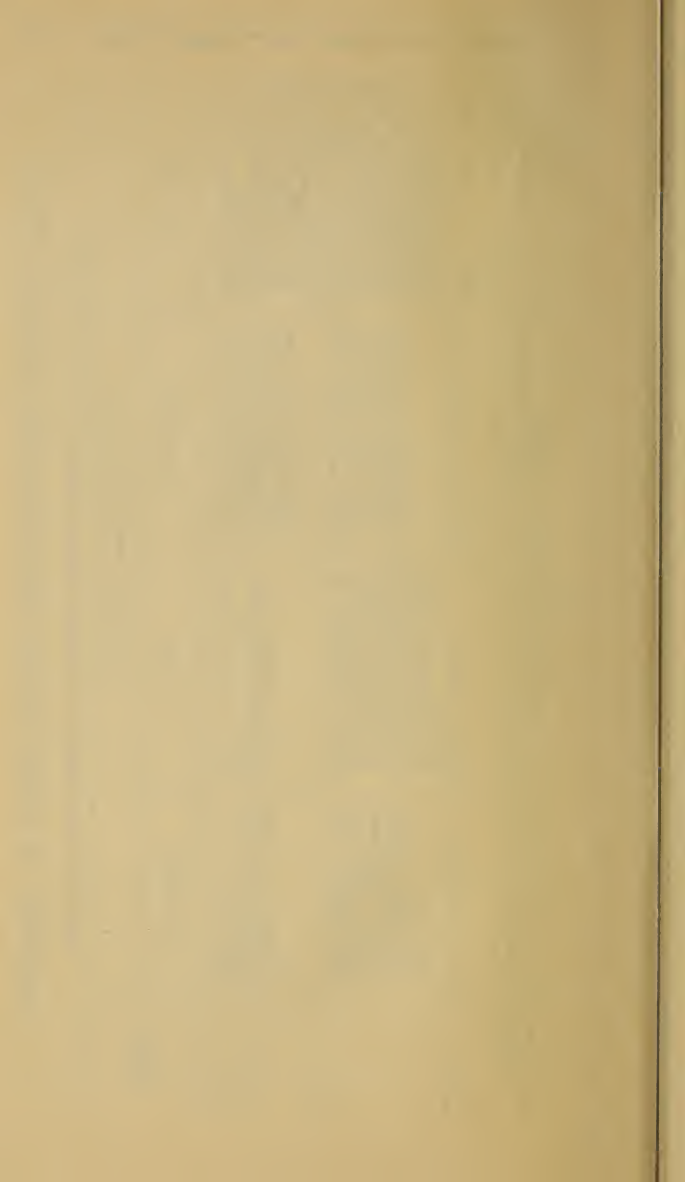
SUMMARY OF UNITED STATES STANDARDS FOR INDIVIDUAL EGGS

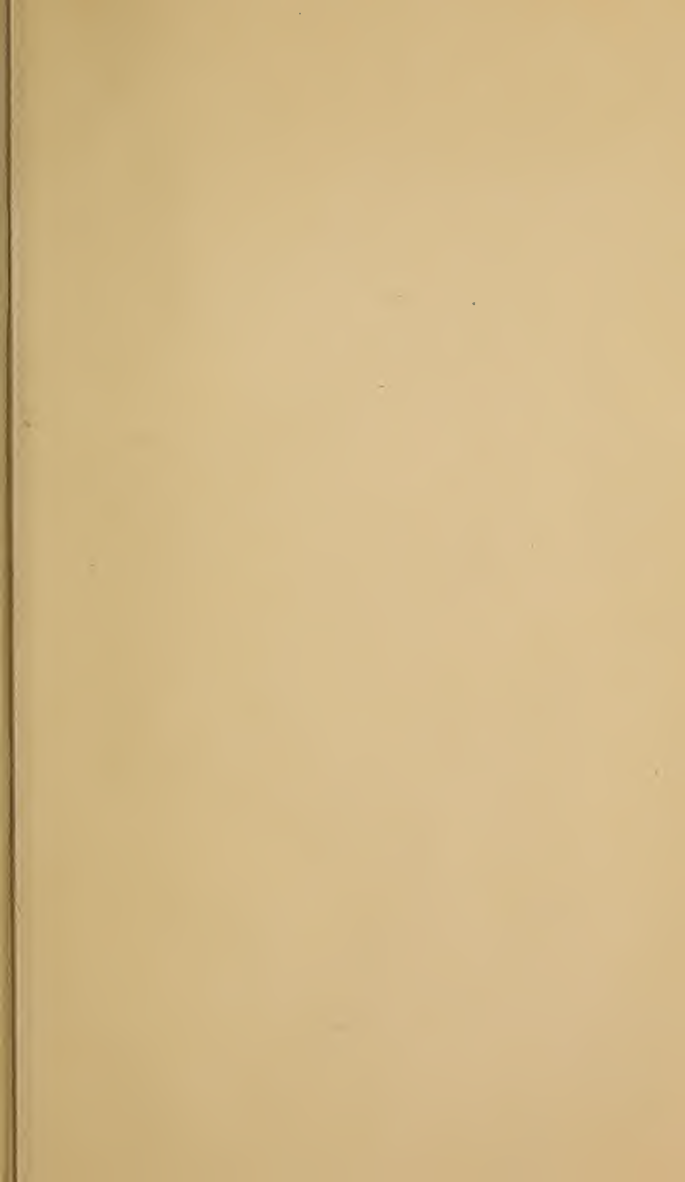
[The figures in parentheses refer to paragraph number of explanations of terms on pp. 3 to 6]

Quality factors	Specifications of each quality factor			
	U. S. Special	U. S. Extra	U. S. Standard	U. S. Trade
Shell-----	Clean (1); sound (2); normal (3).	Clean (1); sound (2); normal (3).	Clean (1); sound (2); may be slightly abnormal (4).	Clean (1); sound (2); may be abnormal (5).
Air cell-----	One-eighth inch or less in depth (6); regular (7).	Two-eighths inch or less in depth (6); regular ¹ (7).	Three-eighths inch or less in depth (6); may show movement not in excess of one-half inch (9).	May be over three-eighths inch in depth (6); may show movement in excess of one-half inch (10); may be bubbly (11) or free (12).
Yolk-----	Well centered (13); outline indistinct (17); motion sluggish (20); free from visible germ development (27) and other defects or blemishes (24).	Fairly well centered (14); outline moderately defined (18); may be slightly mobile (21); free from visible germ development (27) and practically free from other defects or blemishes (24).	Outline well defined (19); may be mobile (22); may show slightly visible germ development (28) and other definite but not serious defects (25).	May be plainly visible (15); may be freely mobile and cast dark shadow (23); and show clearly visible germ development (29) but no blood (30); may show other serious defects (26).
White-----	Firm (31); clear (34)-----	Firm (31); clear (34)-----	Reasonably firm (32); clear (34).	May be weak and watery (33).

Eggs that otherwise fully meet the specifications of U. S. Extra but have slightly tremulous (8) air cell (a movement not in excess of one-eighth inch) may be classed as U. S. Extras in the retail grade of U. S. Extras.







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